

# COURSE SYLLABUS



COURSE TITLE: Math 039 Basic Math for Healthcare

CLASS SECTION: Math S03

TERM: Winter 2022

COURSE CREDITS: 0

DELIVERY METHOD(S): Lecture

Camosun College campuses are located on the traditional territories of the Lək̓ʷəŋən and W̱SÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.

Learn more about Camosun's [Territorial Acknowledgement](#).

The COVID-19 pandemic has presented many challenges, and Camosun College is committed to helping you safely complete your education. Following guidelines from the Provincial Health Officer, WorkSafe BC, and the B.C. Government to ensure the health and wellbeing of students and employees, Camosun College is providing you with every possible protection to keep you safe. Our measures include COVID Training for students and employees, health checks, infection control protocols including sanitization of spaces, PPE and ensuring physical distancing. For details on these precautions please follow this link: <http://camosun.ca/covid19/faq/covid-faqs-students.html>. However, if you're at all uncomfortable being on campus, please share your concerns with your Instructor. If needed, alternatives will be discussed.

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*Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.*

## INSTRUCTOR DETAILS

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NAME: Augustin (Ruse) Rusekampunzi

EMAIL: [ruse@camosun.bc.ca](mailto:ruse@camosun.bc.ca)

OFFICE: CBA 148

HOURS: Tuesday, Thursday and Friday 1030 – 1220. (See class handout for lab and office hours).

## CALENDAR DESCRIPTION

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In this course, students learn topics in Adult Basic Education (ABE) Fundamental Mathematics such as whole numbers, decimals, fractions, proportions, percents, conversions and dosage calculations. These topics are needed for professional math competence in many health professions and for further study in Intermediate Mathematics. Students will focus on strengthening comprehension by solving real practice problems from occupational examples.

Prerequisites One of:

- COM in [ENGL 025](#)
- COM in [ELD 052](#) and [ELD 054](#)

## COURSE LEARNING OUTCOMES / OBJECTIVES

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At the end of the course, students will be able to:

1. Demonstrate knowledge and skills in using the principles and operations of various math topics such as arithmetic, measurement, graphs, formulas, and geometry
2. Apply a variety of strategies in solving math-related problems
3. Apply knowledge and skills in various math topics to solve problems related to Health Care
4. Use knowledge of various math topics as a basis for further study.

## REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

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- (a) textbook: [\*Math Basics for the Healthcare Professional\*](#), 4<sup>th</sup> Ed, by Michele Benjamin-Lesmeister
- (b) calculator (scientific calculator recommended: [Sharp EL531W](#) used for MATH 053)

### *Supplementary Materials*

- (a) Selected open source math videos: <https://sites.camosun.ca/acf-math/wp-content/uploads/sites/6/2020/06/MATH-039-Video-Links-June-2020.pdf>
- (b) website <https://mlm.pearson.com/northamerica/mymathlab/> (online text, tutorials, videos, and testing)

## COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

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### *Self-paced Instructions*

For each unit of your Math 039 text listed in the table below,

- a. **Skip the Pre-Test** at the beginning of the text, as well as at the beginning of each Unit/Chapter
- b. **Read** the **Student Learning Outcomes**, the **Overview**, and **Review** sections for each math topic and study the **Examples**
- c. **Do** the **odd numbered questions only** (#1, 3, 5, etc.) in each of the **Practices**
- d. **Check** your answers in the back of the book (**Appendix C**); you can also record them in the “Score” column of your Course Outline below, if you wish
- e. (Optional) For **additional review**, if needed, do:
  - o post-tests and a pre-tests (answers at the back of the book)
  - o a unit review at the end of the chapter
  - o practice tests for all 13 units (Appendix B)
- f. Ask for each **Module Test** when ready

MATH 039 course content	Score
Text: <i>Math Basics for the Healthcare Professional</i>	

MODULE 1	ARITHMETIC OPERATIONS (no calculator)	
Page	Unit 1 – Whole Number Review	
6	Addition	
8	Subtraction	
9	Multiplication	
11	Prime Factorization	
12	Division: <i>Practice</i>	
15	Solving for the Unknown Number	
16	Rounding	
17	Estimation	
18	Statistical Analysis	
25	Roman Numerals	
26	Time in Allied Health	
<b>Page</b>	<i>Unit 2 – Fractions</i>	
33	Part-to-whole Relationships	
34	Equivalent fractions	
35	Reducing to Lowest or Simplest Terms	
38	Improper Fractions	
39	Adding Fractions with Like Denominators	
41	Finding the Common Denominator	
43	Difficult Common Denominators	
46	Ordering Fractions	
46	Subtraction of Fractions	
51	Multiplication of Fractions	
55	Multiplication of Mixed Numbers	
58	Division of Fractions	
61	Converting Temperatures Using Fraction Formulas	
63	Complex Fractions	
66	Measurement in Fractions	
<b>Page</b>	<i>Unit 3 – Decimals</i>	
75	Decimals	
78	Rounding Decimals	
79	Comparing Decimals	
82	Addition of Decimals	
83	Subtraction of Decimals	
84	Multiplication of Decimals	
87	Division of Decimals	
89	Simplified Multiplication and Division of Decimals	
92	Changing Decimals to Fractions	
94	Changing Fractions to Decimals	
96	Temperature Conversions with Decimals	
97	Solving Mixed Fraction and Decimal Problems	
<b>TEST</b>	<b>Module 1 Test - Arithmetic Operations (Units 1-3) (no calculator)</b>	
	(75% minimum)	

<b>MODULE 2</b>	<b><i>RATIO, PERCENT &amp; MEASUREMENT (calculator allowed)</i></b>	
<b>Page</b>	<b><i>Unit 4 – Ratio &amp; Proportion</i></b>	
105	Ratio	
109	Proportion	
110	Solving for “x”	
115	Word Problems Using Proportions	
117	Solving for “x” in More Complex Problems	
119	Nutritional Application of Proportions	
120	Practice with Food Labels	
<b>Page</b>	<b><i>Unit 5 – Percent</i></b>	
129	Percent-to-Decimal Conversion	
130	Decimal-to-Percent Conversion	
131	Using Proportion to Solve Percent Problems	
136	Percent Change	
137	Percent Strength of Solutions	
141	Single Trade Discount	

<b>Page</b>	<b><i>Unit 6 – Combined Applications</i></b>	
148	Conversions Among Fractions, Decimals, Ratios & Percent	
152	Using Combined Applications in Measurement Conversion	
153	Standard Units of Measure	

<b>Page</b>	<b><i>Unit 8 – The Metric System</i></b>	
188	Using the Metric Symbols	
190	Changing Unit Measures	

<b>TEST</b>	<b><i>Module 2 Test – Ratio, Percent &amp; Measurement (Units 4, 5, 6 &amp; 8)</i></b>	
	<i>(75% minimum)</i>	

<b>MODULE 3</b>	<b><i>DRUG LABELS, CONVERSIONS AND DOSAGE</i></b>	

<b>Page</b>	<b><i>Unit 9 - Reading Drug Labels, Medicine Cups, Syringes &amp; IV Bags</i></b>	
204	Drug Labels	
209	Medicine Cups	
210	Syringes	
211	IV Bags	

<b>Page</b>	<b><i>Unit 10 - Apothecary Measurement &amp; Conversion</i></b>	
219	Apothecary Measurement & Conversions	
229	Rounding in Dosage Calculations	

<b>Page</b>	<b><i>Unit 11 - Dosage Calculations</i></b>	
237	Performing Dosage Calculations	

<b>TEST</b>	<b><i>Module 3 Test – Drug Labels, Conversions &amp; Dosage (Units 9-11)</i></b>	
	<i>(75% minimum)</i>	

<b>MODULE 4</b>	<b><i>TYPES OF DOSAGE CALCULATIONS</i></b>	
<b>Page</b>	<b><i>Unit 12 - Parenteral Dosage</i></b>	
255	Injections	
<b>Page</b>	<b><i>Unit 13 – Basics of Intravenous Fluid Administration</i></b>	
270	Calculating IV Infusion Rates	
273	Modified Setup	
275	Infusion Duration	
277	Calculating Total Volume	
<b>Page</b>	<b><i>Unit 14 – Basic Dosage by Body Weight</i></b>	
284	Conversion to Kilograms	
286	Calculating Dosage	
<b>TEST</b>	<i>Module 4 – Types of Dosage Calculations (Units 12-14)</i> (75% minimum)	
<b>Review</b>	Math 039 Review: <i>Comprehensive Post-test (Appendix A on P. 293)</i>	
<b>FINAL</b>	<b>Final Exam</b>	

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced notice is required. Deadlines can be reviewed on the [CAL exams page](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

## EVALUATION OF LEARNING

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- (a) **Tests** 75% of the course grade is based on the average of **all** test scores for modules 1–4 (including both passing and failing test scores)
- (b) **Exams** 25% of the course grade is based on the average of **all** final exam scores (including both passing and failing exam scores)

**Note:** Students with a record of poor attendance OR poor progress may be restricted from re-registering in Academic and Career Foundations Department courses.

DESCRIPTION	WEIGHTING
Module 1	18.75%
Module 2	18.75%
Module 3	18.75%
Module 4	18.75%
Final Exam	25%
	<b>TOTAL</b>
	100%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the [Grade Review and Appeals](http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf) policy for more information.  
<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

## COURSE GUIDELINES & EXPECTATIONS

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The course consists of 6 hours of class time and 4 hours of lab time per week. Lab time is generally spent in the Help Centre where instructional resources are available. Course completion time will vary for each student, depending on a number of factors, including your current level of math skills, motivation, learning rate, and how much time you have to study math, either at the college or at home. Students generally need to spend 5 - 15 hours of study time per week to complete each math course within a reasonable amount of time.

## SCHOOL OR DEPARTMENTAL INFORMATION

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**Grading System** – Standard Grading System <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>

A+	90–100%	B+	77–79%	C+	65–69%	D	50-59%
A	85–89%	B	73–76%	C	60–64%	F	40-49%
A–	80–84%	B–	70–72%	IP	in progress		

### Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>

for information on conversion to final grades, and for additional information on student record and transcript notations.

## STUDENT RESPONSIBILITY

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Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

## SUPPORTS AND SERVICES FOR STUDENTS

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Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit <http://camosun.ca/students/>.

Support Service	Website
Academic Advising	<a href="http://camosun.ca/advising">http://camosun.ca/advising</a>
Accessible Learning	<a href="http://camosun.ca/accessible-learning">http://camosun.ca/accessible-learning</a>
Counselling	<a href="http://camosun.ca/counselling">http://camosun.ca/counselling</a>
Career Services	<a href="http://camosun.ca/coop">http://camosun.ca/coop</a>
Financial Aid and Awards	<a href="http://camosun.ca/financialaid">http://camosun.ca/financialaid</a>
Help Centres (Math/English/Science)	<a href="http://camosun.ca/help-centres">http://camosun.ca/help-centres</a>
Indigenous Student Support	<a href="http://camosun.ca/indigenous">http://camosun.ca/indigenous</a>
International Student Support	<a href="http://camosun.ca/international/">http://camosun.ca/international/</a>
Learning Skills	<a href="http://camosun.ca/learningskills">http://camosun.ca/learningskills</a>
Library	<a href="http://camosun.ca/services/library/">http://camosun.ca/services/library/</a>
Office of Student Support	<a href="http://camosun.ca/oss">http://camosun.ca/oss</a>
Ombudsperson	<a href="http://camosun.ca/ombuds">http://camosun.ca/ombuds</a>
Registration	<a href="http://camosun.ca/registration">http://camosun.ca/registration</a>
Technology Support	<a href="http://camosun.ca/its">http://camosun.ca/its</a>
Writing Centre	<a href="http://camosun.ca/writing-centre">http://camosun.ca/writing-centre</a>

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

## COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

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### Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the [Centre for Accessible Learning](#) (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started:

<http://camosun.ca/services/accessible-learning/>

### Academic Integrity

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf> for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

### Academic Progress

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf> for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

### Course Withdrawals Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <http://camosun.ca/learn/fees/#deadlines>.

### Grading Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf> for further details about grading.

### Grade Review and Appeals

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

### Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the "Attendance" section under "Registration Policies and Procedures"

(<http://camosun.ca/learn/calendar/current/procedures.html>) and the Grading Policy at <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>.

### Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf> to learn more about the process involved in a medical/compassionate withdrawal.



### Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence and Misconduct Policy: <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf> and [camosun.ca/sexual-violence](http://camosun.ca/sexual-violence). To contact the Office of Student Support: [oss@camosun.ca](mailto:oss@camosun.ca) or by phone: 250-370-3046 or 250-3703841

### Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

**Changes to this Syllabus:** Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.